



Architecture / Design

103 Paine Street, Worcester, Massachusetts 01605

## AUTISM BEHAVIORAL SERVICES, INC

13 Centennial Dr, North Grafton, MA

### Partial Change of Use from B-Business to E-Educational - Code Review

December 24, 2015

#### OWNER:

## AUTISM BEHAVIORAL SERVICES, INC

13 Centennial Dr, North Grafton, MA

#### DESIGN TEAM:

##### Architect of Record:

Robert M Shaw Jr  
Dimensions 2&3 Architecture and Design  
103 Paine St  
Worcester, MA 01605  
Tel: (508) 868-6188

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JAN 13 2016

**PLANNING BOARD  
GRAFTON, MA**

##### Design Consultant:

Rafael Hernandez, Project Lead  
Acropolis Design Consultants  
18 Darby Street  
Worcester MA 01605  
Tel: (774) 262-3187

#### Type of Construction

The current building is a Type 2b construction, unprotected

Built about 2003, having CORREG STL exterior and METAL roof with rubber membrane roof finish. Concrete floor slab and masonry walls Review is based on applicable sections for this project.

## Occupancy Group

### B-Business offices

Habitable Areas – Gross: First Floor = 15,050 SF

- Existing building construction date: c. 2003s

Dimensions 162'-0" x 98'-0"

# of floors 1 story

Label use-group area percentages (net)

Tenant	Uses	SF	Occupancy	Occupant load	# of persons
NEPAC	Offices	2,696	B-Business	100 SF/Person	26 persons
Autism	Offices & corridor	2,960	B-Business	100 SF/Person	29 persons
Autism	Classrooms	1,310	E-Educational	20 SF/Person	65 persons
	playrooms	4,881	E-Educational	50 SF/Person	97 persons
	Lunch room	756	E-Educational	50 SF/Person	15 persons
Autism	Restrooms	698	B & E-Educational		
Autism	Storage, Mech.	504		300 SF/Person	1 persons
Total	Wall Area	1245			
Total (sf)	15,050	100%			233 person

- Existing building Use Group: Business Group B (Offices)

- Proposed Use Group: E-Education

- Existing Hazard Index: 4

- Proposed Hazard Index: 4

- Building Construction: Heavy timber framed, exterior brick bearing walls

- Construction Type: Type Type 2 Metal post and beam and bar joist with masonry infill facade, Concrete floor and Metal deck roof with rubber membrane

Fully sprinklered building

- Height and Area Limitations (without allowable increases for access and fire protection):

#### GENERAL BUILDING HEIGHTS AND AREAS

**TABLE 503**  
**ALLOWABLE BUILDING HEIGHTS AND AREAS\***  
 Building height limitations shown in feet above grade plane. Story limitations shown as stories above grade plane.  
 Building area limitations shown in square feet, as determined by the definition of "Area, building," per story

GROUP	HEIGHT(feet)	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
		UL	160	65	55	65	55	65	50	40
STORIES(S) AREA (A)										
B	S	UL	11	5	3	5	3	5	3	2
	A	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
E	S	UL	5	3	2	3	2	3	1	1
	A	UL	UL	26,500	14,500	23,500	14,500	25,500	18,500	9,500

#### Scope of Work:

No scope of work is proposed, unless required by change of use.

1. Install new exterior Company signs.

#### Codes reviewed:

#### International Codes (I-Codes)                      Massachusetts Regulations

IBC - International Building Code 2009      (IBC)

780 CMR-MA Amendments to the IBC 8TH Amendment

IEBC - International Existing Building Code 2009 (IEBC)

527 CMR - MA fire prevention and electrical regulations

IECC - International Energy Conservation Code 2012 (IECC)

521 CMR - MA accessibility regulations

M.G.L. 148 Fire Prevention Section 26G

## 2009 International Existing Building Code (IEBC)

2009 INTERNATIONAL EXISTING BUILDING CODE With Massachusetts Amendments		
Chapter 1: Scope and Administration		
Section	Title	N/A and comments
101	GENERAL	
101.5	Compliance Methods	Subject to Work Area Compliance Method
101.5.4.0	Mass amendment – Investigation and Evaluation. Subject to Mass amendment 107.6 to the IBC, a written report is required to be submitted to the Building Official.	Provided herein on a preliminary basis. When final scope of work is defined, should be submitted with permit documents.
101.5.4.1	Mass amendment – IBC Level Seismic Refer to Table 101.5.4.1.0	Not applicable
101.5.4.2 Exceptions	Mass amendment – Exceptions 1. 50% 2009 IBC prescribed forces when directed to this section by 807.4.3 2a. 50% 2009 IBC prescribed forces when directed to this section by 1003.3.1 and the vertical addition increases the building area by 30% or less. 2b. 75% 2009 IBC prescribed forces when directed to this section by 1003.3.1 and the vertical addition increases the building area	Not applicable
101.9	Mass amendment - Cumulative effects.	

101.9 Exceptions	<p>Mass amendment - Cumulative effects must be considered except when <u>all</u>:</p> <ol style="list-style-type: none"> <li>1. Structural work does not involve more than 2% of the total tributary area of horizontal framing members of any existing framed floor or roof.</li> <li>2. Structural work does not alter shear walls above the foundation.</li> <li>3. Structural work does not alter columns or diagonal braces.</li> <li>4. Structural work does not create an opening in any framed floor or roof that has an area more than 2% of the framed floor or roof.</li> <li>5. Structural work does not alter any floor or roof diaphragm and its connections such that in-plane shear resistance is reduced by more than 5%.</li> <li>6. Structural work does not remove or reconfigure lateral load resisting frames, or foundations supporting them.</li> </ol>	Not applicable
101.10	<p>Mass amendment - Masonry walls. Must follow Appendix A1 where any of the following conditions exist</p> <ol style="list-style-type: none"> <li>1. Work area &gt; 50% aggregate area</li> <li>2. Occupancy increase by more than 25% and total occupancy is 100 or more.</li> <li>3. Occupancy change to a relative hazard category of 1 or 2 per Table 912.5 or</li> <li>4. educational occupancy K to 12.</li> </ol> <p>A Level 2 Alteration to Occupancy Category IV per ASCE 7-05 table 1-1</p>	Not applicable

Chapter 2: Definitions		
Section	Title	N/A and comments
202	GENERAL DEFINITIONS	
	Change of occupancy. A change in the purpose or level of activity within a building that involves a change in application of the requirements of this code.	Applicable
	Existing building. A building erected prior to the date of adoption of the appropriate code, or one for which a legal building permit has been issued.	Erected Prior to 8th Edition
	Repair. The restoration to good or sound condition of any part of an existing building for the purpose of its maintenance.	Not applicable

	<p>Work area. That portion or portions of a building consisting of all reconfigured spaces as indicated on the construction documents. Work area excludes other portions of the building where incidental work entailed by the intended work must be performed and portions of the building where work not initially intended by the owner is specifically required by this code.</p>	<p>No work is proposed, only Change of occupancy requested.</p>
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Chapter 3: Prescriptive Compliance Method		
Section	Title	N/A and comments
301	GENERAL	
301.1	<p>Scope. Controls alteration, repair, addition and change of occupancy</p>	No Proposed work, Change of occupancy only.
301.2	<p>Building Materials. Existing materials can remain. New materials shall meet current Building Code. Like materials permitted if not hazardous.</p>	Proposed work uses materials compliant with current Building Code.
303	ALTERATIONS	
303.1	<p>General. Existing stairways shall not be required to comply with the Building Code for new construction. Existing stair handrails shall not be required to comply with the Building Code for new construction regarding full extension of handrails.</p>	Not applicable.
303.2	Flood hazard area.	Not applicable.
303.3	<p>Existing structural elements carrying gravity loads. Any existing gravity load-carrying structural element for which an alteration causes an increase in design gravity load of more than 5 percent shall be strengthened, supplemented, replaced or otherwise altered as needed to carry the increased gravity load required by the Building Code for new structures.</p>	No increase in loads.
303.4	<p>Mass amendment - Existing structural elements carrying lateral load Does the alteration:</p> <ul style="list-style-type: none"> <li>▪ increase design lateral loads? or</li> <li>▪ create a structural irregularity? or</li> <li>▪ decrease the capacity?</li> </ul>	No increase in loads.
303.4.1	Seismic	Not applicable.

304	REPAIRS	
304.1	General.	
304.2	Substantial structural damage to vertical elements of the lateral-force resisting system. (refer to definition of "substantial structural damage" in Chapter 2)	Not applicable
304.3	Substantial structural damage to gravity load-carrying components.	Not applicable
304.4	Less than substantial structural damage. Repairs shall be allowed that restore the building to its pre-damaged state using materials and strengths that existed prior to	Not applicable

Chapter 4: Classification of Work (Work Area Compliance Method)		
Section	Title	N/A and comments
401	GENERAL	
402	REPAIRS	Not applicable.
403	ALTERATIONS—LEVEL 1	Not Applicable
404	ALTERATIONS—LEVEL 2	Not Applicable
405	ALTERATIONS—LEVEL 3	Not applicable.
406	CHANGE OF OCCUPANCY	Applicable.
406.1	406.1 Scope. Change of occupancy provisions apply where the activity is classified as a change of occupancy as defined in Chapter 2 Chapter 2.	
406.2	406.2 Application. Changes of occupancy shall comply with the provisions of Chapter 9.	
407	ADDITIONS	Not applicable.
408	HISTORIC BUILDINGS	Not applicable.
409	RELOCATED BUILDINGS	Not applicable.
Chapter 5: Repairs (Work Area Compliance Method)		
Section	Title	N/A and comments
501	GENERAL	Not applicable
Chapter 6: Alterations—Level 1 (Work Area Compliance Method)		
Section	Title	N/A and comments
601	GENERAL	Not Applicable
Chapter 7: Alterations—Level 2 (Work Area Compliance Method)		
Section	Title	N/A and comments
701	GENERAL	Not Applicable.

Chapter 8: Alterations—Level 3 (Work Area Compliance Method)		
Section	Title	N/A and comments
801	GENERAL	Not applicable.
Chapter 9: Change of Occupancy (Work Area Compliance Method)		
Section	Title	N/A and comments
901	GENERAL	Applicable.
901.1	<p>Scope.</p> <p>The provisions of this chapter shall apply where a change of occupancy occurs, as defined in Section 202. including:</p> <ol style="list-style-type: none"> <li>1. Where the occupancy classification is not changed, or</li> <li>2. Where there is a change in occupancy classification or the occupancy group designation changes.</li> </ol>	Applicable
901.2	<p>Change in occupancy with no change of occupancy classification.</p> <p>A change in occupancy, as defined in Section 202, with no change of occupancy classification shall not be made to any structure that will subject the structure to any special provisions of the applicable Codes, including the provisions of Sections 902 through 911, without the approval of the code official. A certificate of occupancy shall be issued where it has been determined that the requirements for the change in occupancy have been met.</p>	Applicable
901.2.1	<p>Repair and alteration with no change of occupancy classification.</p> <p>Any repair or alteration work undertaken in connection with a change of occupancy that does not involve a change of occupancy classification shall conform to the applicable requirements for the work as classified in Chapter 4 and to the requirements of Sections 902 through 911.</p>	Applicable
901.4	<p>Certificate of occupancy required.</p> <p>A certificate of occupancy shall be issued where a change of occupancy occurs that results in a different occupancy classification as determined by the Building Code.</p>	New Certificate of Occupancy required.
903	BUILDING ELEMENTS AND MATERIALS	



903.1	General. Building elements and materials in portions of buildings undergoing a change of occupancy classification shall comply with Section 912.	Change in occupancy only, no new elements or materials.
902.2	Underground buildings	
907	STRUCTURAL	
907.1	Gravity loads . Buildings or portions thereof subject to a change of occupancy where such change in the nature of occupancy results in higher uniform or concentrated loads based on Tables 1607.1 and 1607.6 of the International Building Code shall comply with the gravity load provisions of the Building Code.	Former occupancy - Business: 50 to 80 psf, uniform load, 2,000 pounds concentrated load  Proposed occupancy – Educational and Business: 50 to 80 psf, uniform load, 2,000 pounds concentrated load Therefore, no increase in uniform or concentrated loads for change in use
<b>Chapter 10: Additions (Work Area Compliance Method)</b>		
Section	Title	N/A and comments
1001	GENERAL	Not applicable.
<b>Chapter 11: Historic Buildings (Work Area Compliance Method)</b>		
Section	Title	N/A and comments
1101	GENERAL	Not applicable.
<b>Chapter 12: Relocated or Moved Buildings (Work Area Compliance Method)</b>		
Section	Title	N/A and comments
1201	GENERAL	Not applicable.
<b>Chapter 13: Performance Compliance Method</b>		
Section	Title	N/A and comments
1301	GENERAL	Not applicable.
<b>MASSACHUSETTS ARCHITECTURAL ACCESS BOARD REGULATIONS</b>		
<b>Chapter 3: Jurisdiction</b>		
Section	Title	N/A and comments
3.1	SCOPE	
	All work performed on public buildings or facilities (see 521 CMR 5.00: DEFINITIONS), including construction, reconstruction, alterations, remodeling, additions, and changes of use shall conform to 521 CMR.	This is a public building or facility, therefore 521 CMR applies.
3.3	EXISTING BUILDINGS	
	All additions to, reconstruction, remodeling, and alterations or repairs of existing public buildings or facilities, which require a building permit or which are so defined by a state or local inspector, shall be governed by all applicable subsections in 521 CMR 3.00: JURISDICTION.	521 CMR applies to alteration 2.

3.3.1	<p>If the work being performed amounts to less than 30% of the full and fair cash value of the building and</p> <p>a. if the work costs less than \$100,000, then only the work being performed is required to comply with 521 CMR or</p> <p>b. if the work costs \$100,000 or more, then the work being performed is required to comply with 521 CMR. In addition, an accessible public entrance and an accessible toilet room, telephone, drinking fountain (if toilets, telephones and drinking fountains are provided) shall also be provided in compliance with 521 CMR.</p>	<p>No proposed work, therefore this space costs less than \$100,000, therefore compliance with 521 CMR is not required.</p> <p>However, if cumulatively, over the space of three years, more than 30% of the value of the building is spent, then full compliance will be triggered.</p> <p>Cummulative work to building does not trigger requirement, however building meets 521 CMR</p>
3.3.1	<p>Exceptions: Whether performed alone or in combination with each other, the following types of alterations are not subject to 521 CMR 3.3.1, unless the cost of the work exceeds \$500,000 or unless work is being performed on the entrance or toilet. (When performing exempted work, a memo stating the exempted work and its costs must be filed with the permit application or a separate building permit must be obtained.)</p> <p>a. Curb Cuts: The construction of curb cuts shall comply with 521 CMR 21.00: CURB CUTS</p>	
	<p>b. Alteration work which is limited solely to electrical mechanical, or plumbing systems; to abatement of hazardous materials; or retrofit of automatic sprinklers and does not involve the alteration of any elements or spaces required to be accessible under 521 CMR. Where electrical outlets and controls are altered, they must comply with 521 CMR.</p> <p>c. Roof repair or replacement, window repair or replacement, repointing and masonry repair work.</p> <p>d. Work relating to septic system repairs, (including Title V, 310 CMR 15.00, improvements) site utilities and landscaping.</p>	<p>No proposed work to the existing Mechanical system, sprinkler and the electrical wiring upgrades fall into this exempt category, therefore the cost of this work does not factor into the overall 30% of full and fair value trigger.</p> <p>Therefore, only door and partition erection would fall into this category.</p>

3.3.3	Alterations by a tenant do not trigger the requirements of 521 CMR 3.3.1b and 3.3.2 for other tenants. However, alterations, reconstruction, remodeling, repairs, construction, and changes in use falling within 521 CMR 3.3.1b and 3.3.2, will trigger compliance with 521 CMR in areas of public use, for the owner of the building.	
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## 2009 IBC BUILDING CODE

### SECTION 302

#### CLASSIFICATION

2. Business (see Section 304): Group B-Business

3. Educational (see Section 305): Group E-Educational

### SECTION 304

#### BUSINESS GROUP B

304.1 Business Group B. Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following:

### SECTION 305

#### EDUCATIONAL GROUP E

305.1 Educational Group E. Educational Group E occupancy includes, among others, the use of a building or structure, or a portion thereof, by six or more persons at anyone time for educational purposes through the 12th grade. Religious educational rooms and religious auditoriums, which are accessory to places of religious worship in accordance with Section 303.1 and have occupant loads of less than 100, shall be classified as A-3 occupancies.

305.2 Day care. The use of a building or structure, or portion thereof, for educational, supervision or personal care services for more than five children older than 21/2 years of age, shall be classified as a Group E occupancy.

[F] 903.2.3 Group E. An automatic sprinkler system shall be provided for Group E occupancies as follows:

1. Throughout all Group E fire areas greater than 12,000 square feet (1115 m<sup>2</sup>) in area.
2. Throughout every portion of educational buildings below the lowest level of exit discharge serving that portion of the

## Building.

Exception: An automatic sprinkler system is not required in any area below the lowest level of exit discharge serving that area where every classroom throughout the building has at least one exterior exit door at ground level.

## SECTION 906

### PORTABLE FIRE EXTINGUISHERS

[F] 906.1 Where required. Portable fire extinguishers shall be installed in the following locations.

1. In new and existing Group A, B, E, F, H, I, M, R-I, R-2, R-4 and S occupancies.

Exception: In new and existing Group A, Band E occupancies equipped throughout with quick response sprinklers, portable fire extinguishers shall be required only in locations specified in Items 2 through 6.

2. Within 30 feet (9144 mm) of commercial cooking equipment.

3. In areas where flammable or combustible liquids are stored, used or dispensed.

4. On each floor of structures under construction, except Group R-3 occupancies, in accordance with Section 1415.1 of the International Fire Code.

5. Where required by the International Fire Code sections indicated in Table 906.1.

6. Special-hazard areas, including but not limited to laboratories, computer rooms and generator rooms, where required by the fire code official.

## TABLE 1004.1.1

### MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANCY

Business areas 100 gross

Educational Classroom area 20 net

Shops and other vocational room areas 50 net

Table 2902.1

Tenant	Uses	SF	Occupancy	Occupant load	# of			
					persons	toilets	Lav.	Drinking
NEPAC	Offices	2,696	B-Business	100 SF/Person	26			
Autism	Offices & corridor	2,960	B-Business	100 SF/Person	29			
Autism	Classrooms	1,310	E-Educational	20 SF/Person	65			
	playrooms	4,881	E-Educational	50 SF/Person	97			
	Lunch room	756	E-Educational	50 SF/Person	15			
Autism	Restrooms	698	B & E-Educ.					
Autism	Storage, Mech.	504		300 SF/Person	1			

Total                      Wall Area                      1245

Total (sf)                      15,050                      100%                      233 person

Required fixtures

		toilets	lavatories	Showers	fountainservice sink
B-business	56 persons	3	2	0	1
Educational	177 persons	4	4	0	1
Total required		7	6	0	2
Total existing		8	7	1	2

[P] TABLE 2902.1-continued  
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2 OF THE INTERNATIONAL PLUMBING CODE)		LAVATORIES		BATHTUBS OR SHOWERS	DRINKING FOUNTAINS <sup>b, f</sup> (SEE SECTION 410.1 OF THE INTERNATIONAL PLUMBING CODE)	OTHER
				MALE	FEMALE	MALE	FEMALE			
2	Business	B	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80		-	1 per 100	1 service sink
3	Educational	E	Educational facilities	1 per 50		1 per 50		-	1 per 100	1 service sink

